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## IN THE U.S. PATENT AND TRADEMARK OFFICE

Applicant: Tsuyoshi HIRAMATSU et al.

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For: PRESSURE SENSITIVE ADHESIVE SHEETS FOR REMOVAL  
OF SOLVENT-CONTAINING SUBSTANCESDECLARATION UNDER 37 C.F.R. 1.132

Assistant Commissioner for Patents

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Sir:

I, Tsuyoshi HIRAMATSU, a citizen of Japan and residing at NITTO DENKO CORPORATION 1-2, Shimohozumi 1-chome, Ibaraki-shi, OSAKA, declare and say that:

I was graduated from Department of Chemistry, School of Science, Nagoya University.

From January, 1991 up till the present, I have been engaged in development of pressure-sensitive adhesive tape and relatives since I entered the company.

I am one of the inventors of the above-identified application and am familiar with the subject matter thereof.

I have read the Official Action mailed on July 28, 2004 and the references cited therein and am familiar with the subject matter thereof.

I declare that the following experiment was performed under my direction.

## EXPERIMENT:

## EXAMPLE A

A pressure-sensitive adhesive sheet was prepared by applying an acrylic pressure-sensitive adhesive to a thickness after foaming of 0.08 mm to one side of a polypropylene film (substrate) 0.04 mm thick, and expanding a micro capsule with heating to form a foam layer. The acrylic pressure-sensitive adhesive was composed of 100 parts by weight of an acrylic pressure-sensitive adhesive and 5 parts by weight of a heat expansion micro capsule ('microsphere-F-301D' produced by Matsumoto Yushi-Seiyaku Co., Ltd).

## EXAMPLE B

A pressure-sensitive adhesive sheet was prepared by applying an acrylic pressure-sensitive adhesive to a thickness after foaming of 0.15 mm to one side of a polypropylene film (substrate) 0.04 mm thick, and expanding a micro capsule with heating to form a foam layer. The acrylic pressure-sensitive adhesive was composed of 100 parts by weight of an acrylic pressure-sensitive adhesive and 25 parts by weight of a heat expansion micro capsule ('microsphere-F- 301D' produced by Matsumoto Yushi-Seiyaku Co., Ltd).

## [Evaluation Test]

The solvent absorption, the tackiness before absorption, and that after absorption of the sheets obtained according to Examples A and B were measured.

## Solvent Absorption

The above-prepared pressure-sensitive adhesive sheet was cut to a size of 30 mm times 30 mm (30 mm x 30 mm), was weighed, was immersed in a solvent [diethylene glycol monobutyl ether acetate/diethylene glycol monobutyl ether

(weight ratio: 9/1)] for 1 second, was taken out from the solvent, the solvent deposited on a surface of the sheet was immediately wiped off with a waste rag, the sheet was then weighed again, and the solvent absorption per unit area was determined by calculation.

#### Tackiness before Absorption

The tackiness before use of the pressure-sensitive adhesive sheet was determined by the method in conformity with JIS Z 0237, in which a SUS 430BA plate was used as a test plate and the tackiness was measured after 1-minute contact-bonding of the pressure-sensitive adhesive sheet and the test plate.

#### Tackiness after Absorption

5 g/m<sup>2</sup> of a solvent [diethylene glycol monobutyl ether acetate/diethylene glycol monobutyl ether (weight ratio: 9/1)] was applied to a poly(ethylene terephthalate) film using a wire bar, the pressure-sensitive adhesive sheet having the same size as above was stuck to the film carrying the solvent to thereby permit the pressure-sensitive adhesive layer of the pressure-sensitive adhesive sheet to absorb 5 g/m<sup>2</sup> of the solvent, and the tackiness of the pressure-sensitive adhesive sheet was then determined in the same manner as above.

The test result is given in Table 1.

Table 1

TEST	Ex. A	Ex. B
Solvent Absorption [g/m <sup>2</sup> ]	18.8	12.5
Tackiness before absorption [cN/25mm]	140	14.7
Tackiness after absorption [cN/25mm]	0.98	0

As illustrated in Table 1, the tackiness after absorption of the pressure-sensitive adhesive sheet of the cited reference remarkably decreases up to 0.98 cN/25mm or 0 cN/25mm.

I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the above-identified application or any patent issuing thereon.

This 30th day of November, 2004

Tsuyoshi Hiramatsu  
Tsuyoshi HIRAMATSU